

WHAT IS CLAIMED IS:

1. An illumination device comprising:

a light source; and

5 a light guide plate that receives light from the light source through an end face and that emits the light propagating therein from one surface,

wherein the end face of the light guide plate through which the light is received serves as a light incident face,
10 and the other surface of the light guide plate is provided with a plurality of prism grooves arranged in stripes in plan view and having gently inclined faces and sharply inclined faces inclined at an inclination angle larger than an inclination angle of the gently inclined faces, and

15 wherein the pitch of the prism grooves decreases away from the light source.

2. An illumination device comprising:

a light source; and

20 a light guide plate that receives light from the light source through an end face and that emits the light propagating therein from one surface,

wherein the end face of the light guide plate through which the light is received serves as a light incident face, and
25 the other surface of the light guide plate is provided with a plurality of prism grooves arranged in stripes in plan view and having gently inclined faces and sharply inclined faces inclined at an inclination angle larger than an inclination

angle of the gently inclined faces, and

wherein the inclination angle of the sharply inclined faces increases away from the light source.

5 3. An illumination device comprising:

a light source; and

a light guide plate that receives light from the light source through an end face and that emits the light propagating therein from one surface,

10 wherein the end face of the light guide plate through which the light is received serves as a light incident face, and the other surface of the light guide plate is provided with a plurality of prism grooves arranged in stripes in plan view and having gently inclined faces and sharply inclined faces
15 inclined at an inclination angle larger than an inclination angle of the gently inclined faces, and

wherein the length of the sharply inclined faces increases away from the light source.

20 4. An illumination device comprising:

a light source; and

a light guide plate that receives light from the light source through an end face and that emits the light propagating therein from one surface,

25 wherein the end face of the light guide plate through which the light is received serves as a light incident face, and the other surface of the light guide plate is provided with a plurality of prism grooves arranged in stripes in plan

view and having gently inclined faces and sharply inclined faces inclined at an inclination angle θ_2 larger than an inclination angle θ_1 of the gently inclined faces,

wherein, a θ_2 -coefficient of the light guide plate
5 increases away from the light source, and the θ_2 -coefficient is the ratio of the length of the sharply inclined faces to the pitch of the prism grooves, or the product of the number of the sharply inclined faces per unit length of the light guide plate, and the length of the sharply inclined faces.

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5. An illumination device according to claim 4, wherein the θ_2 -coefficient of the light guide plate is increased away from the light source by changing the inclination angle θ_1 of the gently inclined faces and the inclination angle θ_2 of the
15 sharply inclined faces.

6. An illumination device according to claim 4, wherein the θ_2 -coefficient of the light guide plate is increased away from the light source by changing at least one of the pitch
20 of the prism grooves and the length of the sharply inclined faces while the sum of the inclination angle θ_1 of the gently inclined faces and the inclination angle θ_2 of the sharply inclined faces is not fixed.

25 7. An illumination device according to claim 4, wherein the θ_2 -coefficient is increased away from the light source by changing the pitch of the prism grooves or the length of the sharply inclined faces while the sum of the inclination angle

θ_1 of the gently inclined faces and the inclination angle θ_2 of the sharply inclined faces is substantially fixed.

8. An illumination device according to claim 4, wherein
5 the θ_2 -coefficient is increased away from the light source by changing the length of the sharply inclined faces and the height of prism tops between the prism grooves while the inclination angle θ_1 of the gently inclined faces, the inclination angle θ_2 of the sharply inclined faces, and the
10 pitch of the prism grooves are fixed.

9. An illumination device according to claim 4, wherein the θ_2 -coefficient is set to be within the range of 0.045 to 0.085 when being the product of the number of the sharply
15 inclined faces per unit length of the light guide plate, and the length of the sharply inclined faces.

10. An illumination device according to claim 4, wherein the inclination angle θ_1 of the gently inclined faces
20 of the prism grooves in the light guide plate is set to be within the range of 1° to 5° , and the inclination angle θ_2 of the sharply inclined faces is set to be within the range of 40° to 45° .

25 11. An illumination device according to any one of claims 1 to 4, wherein the angle formed between the prism grooves and the light incident face of the light guide is within the range of 6.5° to 8.5° .

12. A liquid crystal display device comprising:
an illumination device; and
a liquid crystal display unit to be illuminated by the
illumination device,

5 wherein the illumination device comprises:

a light source; and

a light guide plate that receives light from the light
source through an end face and that emits the light
propagating therein from one surface,

10 wherein the end face of the light guide plate through
which the light is received serves as a light incident face,
and the other surface of the light guide plate is provided
with a plurality of prism grooves arranged in stripes in plan
view and having gently inclined faces and sharply inclined
15 faces inclined at an inclination angle larger than an
inclination angle of the gently inclined faces, and

wherein the pitch of the prism grooves decreases away
from the light source.

20 13. A liquid crystal display device comprising:

an illumination device; and

a liquid crystal display unit to be illuminated by the
illumination device,

wherein the illumination device comprises:

25 a light source; and

a light guide plate that receives light from the light
source through an end face and that emits the light
propagating therein from one surface,

wherein the end face of the light guide plate through which the light is received serves as a light incident face, and the other surface of the light guide plate is provided with a plurality of prism grooves arranged in stripes in plan
5 view and having gently inclined faces and sharply inclined faces inclined at an inclination angle larger than an inclination angle of the gently inclined faces, and

wherein the inclination angle of the sharply inclined faces increases away from the light source.

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14. A liquid crystal display device comprising:

an illumination device; and

a liquid crystal display unit to be illuminated by the illumination device,

15 wherein the illumination device comprises:

a light source; and

a light guide plate that receives light from the light source through an end face and that emits the light propagating therein from one surface,

20 wherein the end face of the light guide plate through which the light is received serves as a light incident face, and the other surface of the light guide plate is provided with a plurality of prism grooves arranged in stripes in plan view and having gently inclined faces and sharply inclined
25 faces inclined at an inclination angle larger than an inclination angle of the gently inclined faces, and

wherein the length of the sharply inclined faces increases away from the light source.

15. A liquid crystal display device comprising:
an illumination device; and
a liquid crystal display unit to be illuminated by the
illumination device,

5 wherein the illumination device comprises:

a light source; and

a light guide plate that receives light from the light
source through an end face and that emits the light
propagating therein from one surface,

10 wherein the end face of the light guide plate through
which the light is received serves as a light incident face,
and the other surface of the light guide plate is provided
with a plurality of prism grooves arranged in stripes in plan
view and having gently inclined faces and sharply inclined
15 faces inclined at an inclination angle θ_2 larger than an
inclination angle θ_1 of the gently inclined faces,
wherein a θ_2 -coefficient of the light guide plate increases
away from the light source, and the θ_2 -coefficient is the
ratio of the length of the sharply inclined faces to the
20 pitch of the prism grooves, or the product of the number of
the sharply inclined faces per unit length of the light guide
plate, and the length of the sharply inclined faces.